

CLAIMS

1. A controllable optical lens system, comprising:
 - a chamber housing first and second fluids (10,12), the interface
 - 5 between the fluids defining a lens surface (15);
 - an electrode arrangement (14,16) for electrically controlling the shape of the lens surface (15), the electrode arrangement comprising first (14) and second (16) electrodes; and
 - a power source (60) for supplying current to the electrode
 - 10 arrangement;
 - means for monitoring the current supplied by the power source over time and deriving the charge supplied;
 - means (66) for monitoring the voltage on one (16) of the electrodes of the electrode arrangement; and
 - 15 means (62) for deriving from a desired lens power a value for controlling the total charge to be supplied to the electrode arrangement (14,16).
2. A system as claimed in claim 1, wherein the means for deriving a
- 20 value is for deriving a ratio of the charge supplied to the voltage.
3. A system as claimed in claim 2, wherein the power source is also for maintaining a constant voltage (V_1), and is controlled to maintain the voltage on the one (16) of the electrodes after the derived ratio between the
- 25 charge supplied and the voltage has been reached.
4. A system as claimed in any preceding claim, wherein the means for deriving comprises a look-up table (LUT).
- 30 5. A system as claimed in claim 4, wherein the look-up table receives as input an effective electrode height, which depends on the lens power, and provides as output the ratio of the charge supplied to the voltage.

6. A system as claimed in any preceding claim, wherein the electrode arrangement comprises:

a drive electrode arrangement comprising a base electrode (14) and a side wall electrode (16).

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7. A system as claimed in claim 6, wherein the side wall electrode (16) comprises an annular electrode which surrounds the chamber.

8. A system as claimed in any preceding claim, wherein the first
10 fluid (10) comprises a polar and/or conductive liquid and the second fluid (12) comprises a nonconductive liquid.

9. A method of driving a controllable optical lens, the lens comprising a chamber housing first and second fluids (10,12), the interface
15 between the fluids defining a lens surface (15) and an electrode arrangement for electrically controlling the shape of the lens surface, the electrode arrangement comprising first and second electrodes (14,16), wherein the method comprises:

selecting (30) a desired lens power;
20 deriving (32) from the desired lens power a value for controlling the total charge to be supplied to the electrode arrangement;
supplying current (34) to the electrode arrangement;
monitoring the current supplied (36) over time and deriving the charge supplied, and monitoring the voltage on one of the electrodes of the electrode
25 arrangement; and
supplying current until the total charge supplied to the electrode arrangement reaches the derived value.

10. A method as claimed in claim 9, wherein deriving a value (32)
30 comprises deriving a ratio of the charge supplied to the voltage.

11. A method as claimed in claim 10, further comprising maintaining a constant voltage (40) on the one of the electrodes of the electrode arrangement after the derived ratio between the charge supplied and the voltage has been reached.

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12. A method as claimed in any one of claims 9 to 11, wherein the deriving a value indicating the total charge to be supplied comprises accessing a look-up table.

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13. A method as claimed in claim 12, wherein an effective electrode height is input into the look-up table, which depends on the lens power, and the ratio of the charge supplied to the voltage is output from the look-up table.